



$$I(J^P) = \frac{1}{2}(\frac{1}{2}^+) \text{ Status: } ***$$

According to the quark model, the Ξ_c^0 (quark content dsc) and Ξ_c^+ form an isospin doublet, and the spin-parity ought to be $J^P = 1/2^+$. None of I , J , or P has actually been measured.

NODE=S048

NODE=S048

Ξ_c^0 MASS

NODE=S048M

The fit uses the Ξ_c^0 and Ξ_c^+ mass and mass-difference measurements.

NODE=S048M

NODE=S048M

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
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2470.88^{+0.34}_{-0.80} OUR FIT Error includes scale factor of 1.1.

2471.09^{+0.35}_{-1.00} OUR AVERAGE

2471.0 ± 0.3 ^{+0.2} _{-1.4}	8620 ± 355	¹ LESIAK	05 BELL	e^+e^- , $\Upsilon(4S)$	SYCLP2=D
2470.0 ± 2.8 ± 2.6	85	FRABETTI	98B E687	γ Be, $\bar{E}_\gamma = 220$ GeV	
2469 ± 2 ± 3	9	HENDERSON	92B CLEO	$\Omega^- K^+$	
2472.1 ± 2.7 ± 1.6	54	ALBRECHT	90F ARG	e^+e^- at $\Upsilon(4S)$	SYCLP2=C
2473.3 ± 1.9 ± 1.2	4	BARLAG	90 ACCM	$\pi^- (K^-)$ Cu 230 GeV	SYCLP2=B
2472 ± 3 ± 4	19	ALAM	89 CLEO	e^+e^- 10.6 GeV	SYCLP2=A
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2462.1 ± 3.1 ± 1.4	42	² FRABETTI	93C E687	See FRABETTI 98B	
2471 ± 3 ± 4	14	AVERY	89 CLEO	See ALAM 89	

¹ The systematic error was (wrongly) given the other way round in LESIAK 05.

NODE=S048M;LINKAGE=LE
NODE=S048M;LINKAGE=B

² The FRABETTI 93C mass is well below the other measurements.

$\Xi_c^0 - \Xi_c^+$ MASS DIFFERENCE

NODE=S048D

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
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NODE=S048D

3.1^{+0.4}_{-0.5} OUR FIT

3.1 ± 0.5 OUR AVERAGE

+2.9 ± 0.5	LESIAK	05 BELL	e^+e^- , $\Upsilon(4S)$	SYCLP2=D
+7.0 ± 4.5 ± 2.2	ALBRECHT	90F ARG	e^+e^- at $\Upsilon(4S)$	SYCLP2=C
+6.8 ± 3.3 ± 0.5	BARLAG	90 ACCM	$\pi^- (K^-)$ Cu 230 GeV	SYCLP2=B
+5 ± 4 ± 1	ALAM	89 CLEO	$\Xi_c^0 \rightarrow \Xi^- \pi^+$, $\Xi_c^+ \rightarrow \Xi^- \pi^+ \pi^+$	SYCLP2=A

Ξ_c^0 MEAN LIFE

NODE=S048T

VALUE (10^{-15} s)	EVTS	DOCUMENT ID	TECN	COMMENT
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NODE=S048T

112⁺¹³₋₁₀ OUR AVERAGE

118 ⁺¹⁴ ₋₁₂ ± 5	110	LINK	02H FOCS	γ nucleus, ≈ 180 GeV
101 ⁺²⁵ ₋₁₇ ± 5	42	FRABETTI	93C E687	γ Be, $\bar{E}_\gamma = 220$ GeV
82 ⁺⁵⁹ ₋₃₀	4	BARLAG	90 ACCM	$\pi^- (K^-)$ Cu 230 GeV

Ξ_c^0 DECAY MODES

NODE=S048215;NODE=S048

No absolute branching fractions have been measured. Several measurements of ratios of fractions may be found in the Listings that follow.

NODE=S048

Mode	Fraction (Γ_i/Γ)
Γ_1 $pK^- K^- \pi^+$	seen
Γ_2 $pK^- \bar{K}^*(892)^0$	seen
Γ_3 $pK^- K^- \pi^+$ no $\bar{K}^*(892)^0$	seen
Γ_4 ΛK_S^0	seen
Γ_5 $\Lambda K^- \pi^+$	

DESIG=10;OUR EST;→ UNCHECKED ←
DESIG=2;OUR EST;→ UNCHECKED ←
DESIG=11;OUR EST;→ UNCHECKED ←
DESIG=6;OUR EST;→ UNCHECKED ←
DESIG=12

$\Gamma(\Xi^- \ell^+ \text{ anything}) / \Gamma(\Xi^- \pi^+ \pi^+ \pi^-)$ Γ_{12} / Γ_9

The ratio is for the *average* (not the sum) of the $\Xi^- e^+$ anything and $\Xi^- \mu^+$ anything modes.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$0.29 \pm 0.12 \pm 0.04$	18	ALBRECHT	93B ARG	$e^+ e^- \approx 10.4 \text{ GeV}$

NODE=S048R4

NODE=S048R4

NODE=S048R4

 Ξ_c^0 DECAY PARAMETERS

See the note on "Baryon Decay Parameters" in the neutron Listings.

 α FOR $\Xi_c^0 \rightarrow \Xi^- \pi^+$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$-0.56 \pm 0.39^{+0.10}_{-0.09}$	138	CHAN	01 CLE2	$e^+ e^- \approx \Upsilon(4S)$

NODE=S048225

NODE=S048225

NODE=S048A

NODE=S048A

 Ξ_c^0 REFERENCES

AUBERT,B	05M	PRL 95 142003	B. Aubert <i>et al.</i>	(BABAR Collab.)	REFID=50831
LESIAK	05	PL B605 237	T. Lesiak <i>et al.</i>	(BELLE Collab.)	REFID=50383
Also		PL B617 198 (errata)	T. Lesiak <i>et al.</i>	(BELLE Collab.)	REFID=50652
DANKO	04	PR D69 052004	I. Danko <i>et al.</i>	(CLEO Collab.)	REFID=49960
LINK	02H	PL B541 211	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)	REFID=48775
CHAN	01	PR D63 111102	S. Chan <i>et al.</i>	(CLEO Collab.)	REFID=48150
FRABETTI	98B	PL B426 403	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)	REFID=46086
ALBRECHT	95B	PL B342 397	H. Albrecht <i>et al.</i>	(ARGUS Collab.)	REFID=44117
ALEXANDER	95B	PRL 74 3113	J. Alexander <i>et al.</i>	(CLEO Collab.)	REFID=44197
Also		PRL 75 4155 (erratum)	J. Alexander <i>et al.</i>	(CLEO Collab.)	REFID=44579
ALBRECHT	93B	PL B303 368	H. Albrecht <i>et al.</i>	(ARGUS Collab.)	REFID=43298
FRABETTI	93C	PRL 70 2058	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)	REFID=43240
HENDERSON	92B	PL B283 161	S. Henderson <i>et al.</i>	(CLEO Collab.)	REFID=42050
ALBRECHT	90F	PL B247 121	H. Albrecht <i>et al.</i>	(ARGUS Collab.)	REFID=41339
BARLAG	90	PL B236 495	S. Barlag <i>et al.</i>	(ACCMOR Collab.)	REFID=40999
ALAM	89	PL B226 401	M.S. Alam <i>et al.</i>	(CLEO Collab.)	REFID=40745
AVERY	89	PRL 62 863	P. Avery <i>et al.</i>	(CLEO Collab.)	REFID=40720

NODE=S048